REMARKS

Upon entry of the present amendment, claims 1-7 will remain pending in the above-identified application and stand ready for further action on the merits.

In order to define more clearly the present invention, claim 1 has instantly been amended with respect to the method for determining the oil-absorbing capability. Support for this amendment is found, for example, at page 30, line 17 to page 31, line 16 of the present English specification.

Claim 7 has been amended to change the dependency thereof from "any one of claims 2 to 5" to "claim 2". The amendment is simply intended to remove claim 7's improper multiple dependency.

Provisional Request for Interview

Should the present reply not result in allowance of each of claims 1-7, the Examiner is respectfully requested to contact the undersigned (John W. Bailey, Registry No. 32,881) to schedule a personal interview to expedite further prosecution of the instant case to allowance.

The state of the art and the features and advantages of the present invention

Before specifically discussing the USPTO Examiner's rejection of the claims, it is believed that the following background information should be considered to shed a proper light on the development of the present invention and the advantageous features thereof. As described under "prior art", dried porous crumbs of a conjugated diene/aromatic vinyl compound block copolymer or a hydrogenation product thereof has conventionally been produced as follows. In general, the polymerization for producing a conjugated diene/aromatic vinyl compound block

copolymer and the hydrogenation of the block copolymer are performed in a hydrocarbon solvent inert to a polymerization catalyst and a hydrogenation catalyst, so that each of the block copolymer and the hydrogenation product thereof is obtained in the form of a uniform solution thereof or a uniform suspension thereof in the solvent. Therefore, the obtained block copolymer and the obtained hydrogenation product need to be separated and recovered from the solvent used. With respect to the method for separating a block copolymer or a hydrogenation product thereof from a solvent, various methods are known. As an example of such methods, there is known a method called a "steam stripping method", which comprises adding to hot water a solution or suspension of a block copolymer or a hydrogenation product thereof in a solvent, and distilling off from the resultant mixture the solvent together with water (in the form of steam) to thereby obtain an aqueous slurry containing wet porous crumbs of a block copolymer or a hydrogenation product thereof.

For obtaining dried porous crumbs from the aqueous slurry containing the wet porous crumbs obtained by the above-mentioned method, it is necessary to remove water from the above-mentioned wet crumbs by dehydration and drying. The dehydration of water-containing porous crumbs is generally conducted by a mechanical compression method using a roll type or a Banbury type dehydrator, a screw extruder type compression dehydrator or the like. The drying of the water-containing porous crumbs is generally conducted by a mechanical compression method using a screw extruder type dryer, a kneader type dryer, an expander dryer or the like. Further, it is also conducted to dry the water-containing porous crumbs by a method using a hot-air dryer in combination with any one of the above-mentioned dryers used for a mechanical

compression method.

The thus obtained dried porous crumbs have the capability of absorbing a liquid additive and the like and, therefore, the dried porous crumbs can be advantageously used, for example, as a modifier when a molding resin composition is produced from a thermoplastic resin and a liquid additive.

However, the above-described conventional technique for producing dried porous crumbs has a problem in that not only is the productivity low, but also the produced dried porous crumbs cannot absorb a satisfactory amount of an oil, so that even when the dried porous crumbs are used as a modifier for producing a molding resin composition from a thermoplastic resin and an additive, especially a liquid softening agent or plasticizer (e.g., an oil), it is impossible to efficiently produce a shaped article having an excellent appearance. Accordingly, it has been desired to solve the above-mentioned problem in various fields in which such additive-containing molding resin compositions are used.

In this situation, the present inventors have made extensive and intensive studies in order to solve the problems accompanying the conventional techniques. As a result, it has surprisingly been found that the below-described specific method enables the production of dried porous crumbs of a hydrogenated block copolymer, which have not only a low water content, but also an advantageously high capability of absorbing an oil. The above-mentioned specific method comprises providing an organic solvent solution of a hydrogenated block copolymer which is obtained by hydrogenating a block copolymer comprising (a) at least one polymer block composed mainly of aromatic vinyl monomer units and (b) at least one polymer block composed

mainly of conjugated diene monomer units, the hydrogenated block copolymer having a molecular weight of 70,000 or more; removing the organic solvent from the solution by steam stripping, thereby obtaining an aqueous slurry containing wet porous crumbs of the hydrogenated block copolymer; subjecting the aqueous slurry to gravity dehydration, centrifugation dehydration or filtration dehydration to remove water from the slurry, thereby obtaining a dehydrated wet porous crumbs; and drying, under specific temperature conditions, the obtained dehydrated wet porous crumbs in a hot-air dryer having a thermal conduction type heating means or having no thermal conduction type heating means. Based on this finding, the present invention has been completed.

As can be seen from instantly amended claim 1 of the present application, the present invention provides dried porous crumbs of a hydrogenated block copolymer which is obtained by hydrogenating a block copolymer comprising (a) at least one polymer block composed mainly of aromatic vinyl monomer units and (b) at least one polymer block composed mainly of conjugated diene monomer units, the hydrogenated block copolymer having a molecular weight of 70,000 or more,

the dried porous crumbs having a water content of 1 % by weight or less and having an oil-absorbing capability of 1.0 or more, as measured by a method comprising immersing 10 g of the dried porous crumbs in 1 liter or more of a paraffin process oil at 25 °C under atmospheric pressure for 1 minute, taking out the resultant oil-containing porous crumbs from the oil, introducing the crumbs into a centrifugal separator and treating the oil-containing porous crumbs under 1,000 G for 3 minutes to thereby separate the oil adhering to the crumbs from the crumbs,

taking out the crumbs from the centrifugal separator, measuring the weight of the crumbs and calculating the oil-absorbing capability of the dried porous crumbs by the following formula:

> Oil-absorbing capability = {(the weight of the oil-containing porous crumbs after the centrifugation) - (the weight of the dried porous crumbs before the immersion in the oil)} / (the weight of the dried porous crumbs before the immersion in the oil).

The dried porous crumbs of the present invention have not only an advantageously low water content, but also an advantageously high oil-absorbing capability, and hence can be advantageously used as a modifier when a molding resin composition is produced from a thermoplastic resin and a liquid additive, such as a softening agent or a silicone oil. (See page 6, line 22 to page 8, line 7 of the English specification.)

Such excellent dried porous crumbs of the present invention cannot be obtained by the above-mentioned conventional processes, in which the dehydration of the water-containing porous crumbs and/or the drying of the water-containing porous crumbs are/is conducted by a mechanical compression method. Further, even if, as in the present invention, the dehydration is conducted by gravity, centrifugation or filtration and the drying is conducted by hot air, the dried porous crumbs of the present invention cannot be obtained unless the dehydration and the drying are conducted under conditions satisfying the requirements defined in claim 2 of the present application.

Observations regarding present application's data for Examples and Comparative Examples

In connection with the above, it should be noted that the Examples and Comparative Examples of the present application clearly demonstrate:

that the specific oil-absorbing capability (1.0 or more) of the dried porous crumbs of the present invention is critical for producing shaped articles having an excellent appearance, wherein the oil-absorbing capability is measured by the method described in instantly amended claim 1 of the present application, and

that, for obtaining such excellent dried porous crumbs, it is necessary that the dehydration be conducted by gravity, centrifugation or filtration and the drying be conducted by hot air, and that the dehydration and the drying be conducted under conditions satisfying the requirements defined in claim 2 of the present application.

For easy reference, the data of Examples 1 to 3 and Comparative Examples 1 to 7 are summarized in Table A below.

In this connection, it should be noted that Examples 1 to 3 and Comparative Examples 1 to 7 have been chosen, because Examples 1 to 3 are fair comparisons with respect to Comparative Examples 1 to 7 for the following reasons.

In Comparative Example 1, the production of the dried porous crumbs is conducted in substantially the same manner as in Example 1 except that the dehydration is conducted such that the unsatisfactorily dehydrated wet porous crumbs having a water content of 92 % by weight is obtained, which water content does not satisfy the requirement (from greater than 20 % to 90 % by weight) of the present invention.

In Comparative Example 2, the production of the dried porous crumbs is conducted in substantially the same manner as in Example 1 except that the drying of the wet porous crumbs is conducted at a temperature, which does not satisfy the formula recited in claim 2 of the present

application.

In Comparative Example 3, the production of the dried porous crumbs is conducted in substantially the same manner as in Example 2 except that the drying of the wet porous crumbs is conducted at a temperature, which does not satisfy the formula recited in claim 2 of the present application.

In Comparative Examples 4 and 5, the dehydrated wet porous crumbs obtained in Example 1 are further dehydrated using a mechanical compression type dehydrator (instead of the gravity dehydration conducted in Example 1) (the wet crushing of the dehydrated wet porous crumbs, which is conducted in Example 1 prior to the drying, is omitted), followed by drying, to thereby obtain dried porous crumbs.

In Comparative Example 6, the production of the dried porous crumbs is conducted in substantially the same manner as in Example 3 except that the drying of the wet porous crumbs is conducted at a temperature, which does not satisfy the formula recited in claim 2 of the present application.

In Comparative Example 7, the production of the dried porous crumbs is conducted in substantially the same manner as in Example 1, except that the conditions for the polymerization reactions for producing the block copolymer are changed such that the molecular weight of the hydrogenated block copolymer become 40,000.

Table A

	Block configuration of copolymer	Molecular weight (Mw)	Dehydration apparatus	Drying apparatus	Drying Temp.	Temp. range of the present invention	Porous crumbs after drying			Productivity of dried porous crumbs
					t_1:hot air (°C) t_2:thermal conduction type heating means(°C)		Water content (wt. %)	Oil-absorbing capability	Appearance of shaped article	
Ex.1	S-B-S	300,000	Vibration screen	Horizontal continuous fluidized bed dryer (no thermal conduction type heating means)	t_1: 150 t_2: -	t_1:80 to 300 t_2: -	0.4	1.2	A	High productivity
Ex.2	〃	300,000	Vibration screen	Horizontal continuous fluidized bed dryer having a heat conduction tube	t_1: 190 t_2: 150	t_1:80 to 300 t_2:(90) to 180	0.2	1.1	A	〃
Ex.3	〃	300,000	Oliver Filter	Agitation type dryer	t_1: 120 t_2: 120	t_1:80 to 170 t_2:(80) to150	0.9	1.2	A	〃
Comp. Ex.1	〃	300,000	Vibration screen	Horizontal continuous fluidized bed dryer (no thermal conduction type heating means)	t_1:150 t_2: -	t_1: 80 to 200 t_2: -	3.0	Not measurable	C	―
Comp. Ex.2	S-B-S	300,000	Vibration screen	Horizontal continuous fluidized bed dryer (no thermal conduction type heating means)	t_1:70 t_2: -	t_1: 80 to 200 t_2: -	1.0 to 3.0	Not measurable	C	―
Comp. Ex.3	〃	300,000	Vibration screen	Horizontal continuous fluidized bed dryer having a heat conduction tube	t_1:180 t_2:180	t_1: 80 to 200 t_2: (90) to 180	0.2	0.7	Not evaluated	Discoloration of crumbs, low productivity
Comp. Ex.4	〃	300,000	Vibration screen→Screw extruder type compression dehydrator	Single-screw expander dryer→Dryer having a vibration conveyer	t_1:90 (Dryer having a vibration conveyer)	t_1: 80 to 200	0.3	0.6	C	―
Comp. Ex.5	〃	300,000	Vibration screen→Twin-roll type compression dehydrator	Plate dryer	t_1: - t_2:140	t_1: - t_2: (90) to 180	0.6	0.7	C	―
Comp. Ex.6	〃	100,000	Oliver filter	Agitation type dryer	t_1:160 t_2:160	t_1: 80 to170 t_2: (60) to 180	0.9	0.7	Not evaluated	Intrusion of fusion bonded crumbs, low productivity
Comp. Ex.7	〃	40,000	Vibration screen	Horizontal continuous fluidized bed dryer (no thermal conduction type heating means)	t_1:130 t_2: -	t_1: 80 to 161 t_2: -	0.4	0.8	Not evaluated	Occurrence of a large amount of fusion bonded crumbs, low productivity

Notes for Table A:

1) In the block configuration of the block copolymer, "S" represents a polystyrene block, and "B" represents a polybutadiene block.

2) The values of t_1 and t_2 are calculated by the formulae $80 \leq t_1 \leq 1.5 \times Mw/10^4 + 155$ and $1.5 \times Mw/10^4 + 45 \leq t_2 \leq 1.5 \times Mw/10^4 + 135$, respectively.

3) With respect to the criteria for the evaluation of shaped articles, "A" means that the surface of the shaped article is smooth as a whole and the shaped article has a good appearance, "B" means that the surface of the shaped article is slightly rough, and "C" means that the surface of the shaped article is very rough or foaming is observed in the surface of the shaped article and, hence, the appearance of the shaped article is poor.

From Table A above, it is apparent:

(i) that, in each of Examples 1 to 3, the dried porous crumbs having a high oil-absorbing capability (1.1 or 1.2) are efficiently produced under conditions satisfying the requirements described in claim 2, and that the shaped article produced from the obtained dried porous crumbs has an excellent appearance;

(ii) that, on the other hand, in Comparative Example 1 (in which the dehydration of the water-containing porous crumbs is unsatisfactory),

the obtained dried porous crumbs are unsatisfactorily dried and have a water content as high as 3 % by weight (the measurement of the oil-absorbing capability is impossible), and

with respect to the shaped article produced from the obtained dried porous crumbs, vigorous foaming is observed in the surface of the shaped article and, hence, the shaped article

has a poor appearance (evaluated as "C");

(iii) that, in Comparative Example 2 (the drying temperature does not satisfy the requirement of the present invention),

the water content of the dried porous crumbs is as high as 3 % by weight (the measurement of the oil-absorbing capability is impossible), and

the shaped article produced from the obtained dried porous crumbs has a poor appearance (evaluated as "C");

(iv) that, in Comparative Example 3 (the drying temperature does not satisfy the requirement of the present invention),

in the drying step, some crumbs are fusion-bonded to the heat conduction tube provided in the dryer, so that the drying operation should not be continuously performed, and

in addition, some fusion-bonded crumbs, which are discolored, are detached from the heat conduction tube and caused to be mixed into non-fusion-bonded crumbs, and, hence, the quality of the resultant dried porous crumbs was poor, and

the produced dried porous crumbs have an oil-absorbing capability as low as 0.7;

(v) that, in Comparative Example 4 (in which the dehydration and the drying are conducted by mechanical compression methods),

the water content of the dried porous crumbs is satisfactorily low (0.3 % by weight) but the oil-absorbing capability of the dried porous crumbs is disadvantageously low (0.6), and

that the obtained dried porous crumbs have a poor appearance (evaluated as "C");

(vi) that, in Comparative Example 5 (in which the dehydration is conducted by a

mechanical compression method),

the water content of the dried porous crumbs is satisfactorily low (0.6 % by weight) but the oil-absorbing capability is disadvantageously low (0.7), so that the shaped article produced from the obtained dried porous crumbs is disadvantageously poor (evaluated "C");

(vii) that, in Comparative Example 6 (in which the drying temperature does not satisfy the requirement of the present invention),

in the drying step, some crumbs were fusion-bonded to the inner wall of the agitation type dryer and the surface of the agitation blades of the dryer, so that the drying operation should not be continuously performed, and

in addition, some fusion-bonded crumbs, which are discolored, are detached from the inner wall of the agitation type dryer and the surface of the agitation blades of the dryer and caused to be mixed into non-fusion-bonded crumbs, and, hence, the quality of the resultant dried porous crumbs containing the fusion-bonded, discolored crumbs is poor;

(viii) that, in Comparative Example 7 (in which the dried porous crumbs are produced from the hydrogenated block copolymer having a molecular weight (40,000) which is outside the range defined in claim 2 of the present application),

in the drying step, the dehydrated porous crumbs adhered to the inner wall of the fluidized bed dryer and were fusion-bonded to one another to form a mass of fusion-bonded crumbs, so that the drying operation cannot be stably conducted and it is also impossible to evaluate the appearance of the shaped article produced from the obtained dried porous crumbs, and

the produced dried porous crumbs have an oil-absorbing capability as low as 0.8.

Thus, it is apparent:

(1) that the specific oil-absorbing capability (1.0 or more) of the dried porous crumbs of the present invention is critical for producing shaped articles having an excellent appearance, wherein the oil-absorbing capability is measured by the method described in instantly amended claim 1 of the present application, and

(2) that, for obtaining such excellent dried porous crumbs, it is necessary that the dehydration be conducted by gravity, centrifugation or filtration and the drying be conducted by hot air, and that the dehydration and the drying be conducted under conditions satisfying the requirements defined in claim 2 of the present application.

Claim Objection

In the item "Claim Objections" at page 2 of the office action, the Examiner states as follows:

> *"Claim 7 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim can not depend on another multiple dependent claim. ... Note that amendment to the claims filed by the applicants on 2-20-1999 only amended dependency of claim 6 (twice)."*

In response, Applicants respectfully point out that the Examiner's quoted date "**2**-20-1999" should correctly read -- **12**-20-1999 -- in order to properly reference the Preliminary Amendment dated December 20, 1999. Further, it is noted that claim 7 has been amended to change its dependency from "any one of claims 2 to 5" to -- claim 2 --, thereby obviating the outstanding claim objection for improper multiple dependency under 37 CFR 1.75(c).

Claim Rejection – 37 USC § 112

In the item "Claim Rejections - 35 USC § 112" at page 2 of the office action, claim 5 is rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More specifically, the Examiner states as follows:

> *"The definitions in claim 5 refer to 'said dehydrated wet porous crumbs' that appears several times in the claim, and it is unclear and confusing which particle size is measured in respect to which other particle size."*

In response, Applicants submit that, contrary to the Examiner's assertion, claim 5 does not have an indefiniteness problem and as currently amended fully complies with the provisions of 35 USC § 112. In support of this contention the Applicants direct the Examiner to the above explanation set forth for example, under the heading "The state of the art and the features and advantages of the present invention" that is set forth at pages 6-10 of the present reply. In this respect, it appears that the Examiner may have had a prior misunderstanding about claim 5, which Applicants hope is cleared up by the above explanations.

Further to the above, it is noted that on the topic of 35 USC § 112, second paragraph, M.P.E.P. §§ 2173.01 and 2173.02 provide the following comments, which support withdrawal of the current rejection under 35 USC § 112, second paragraph:

> *A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what they regard as their invention essentially in whatever terms they choose so long as any special meaning assigned to a term is clearly set forth in the specification. See MPEP § 2111.01. Applicant may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is*

> *sought. As noted by the court in In re Swinehart, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought.*
>
> *The examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. 112, second paragraph, is whether the claim meets the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available. When the examiner is satisfied that patentable subject matter is disclosed, and it is apparent to the examiner that the claims are directed to such patentable subject matter, he or she should allow claims which define the patentable subject matter with a reasonable degree of particularity and distinctness. Some latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire. Examiners are encouraged to suggest claim language to applicants to improve the clarity or precision of the language used, but should not reject claims or insist on their own preferences if other modes of expression selected by applicants satisfy the statutory requirement.*

Accordingly, it is submitted that the rejection under 35 USC § 112 has been removed by the above explanation.

Claim Rejections – 35 USC § 102 and 35 USC § 102/103

Claims 2 and 6 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,616,652 to Kusano et al.

Claims 1, 3 to 6 have been rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 5,616,652 (Kusano et al.).

Reconsideration and withdraw of the above rejections is respectfully requested based on the following considerations.

Legal Standard for Determining Anticipation

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "When a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art." *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375, 1376 (Fed. Cir. 2001) "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Legal Standard for Determining Prima Facie Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

"In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Distinctions Over the Cited Art

As described below, the present invention possesses both novelty and non-obviousness

over the cited reference of Kusano et al.

The method employed in Kusano et al. does not satisfy the requirements of claim 2 of the present application. Hence, by the method employed in Kusano et al., the dried porous crumbs having an oil-absorbing capability of 1.0 or more, as measured by the method described in claim 1 of the present application, cannot be obtained. Further, Kusano et al. have no teaching or suggestion about the criticality of the above-mentioned specific oil-absorbing capability (1.0 or more) for producing shaped articles having an excellent appearance, wherein the oil-absorbing capability is measured by the method described in instantly amended claim 1 of the present application. On these points, a detailed explanation is given below.

In the Examples of Kusano et al., the oil-absorbing ratio is measured. However, in Kusano et al., the oil-absorbing capability is measured by a method different from that used in the present invention. Specifically, in the present invention (see the instantly amended claim 1), the oil-absorbing capability is measured by a method comprising immersing 10 g of the dried porous crumbs in 1 liter of more of a paraffin process oil at 25 °C under atmospheric pressure for 1 minute, taking out the resultant oil-containing porous crumbs from the oil, introducing the crumbs into a centrifugal separator and treating the oil-containing porous crumbs under 1,000 G for 3 minutes to thereby separate the oil adhering to the crumbs from the crumbs, taking out the crumbs from the centrifugal separator, measuring the weight of the crumbs and calculating the oil-absorbing capability of the dried porous crumbs by the following formula:

> *Oil-absorbing capability = {(the weight of the oil-containing porous crumbs after the centrifugation) - (the weight of the dried porous crumbs before the immersion in the oil)} / (the weight of the dried porous crumbs before the immersion in the oil).*

On the other hand, in Kusano et al., the oil-absorbing capability is measured by the following method:

> *"20 g of dried crumbs were charged in a bag of 10 cm x 10 cm in size made of 200 mesh filter cloth of nylon filaments and immersed for 3 minutes and 30 minutes in an excessive amount of paraffinic process oil (Diana Process Oil PW-90, manufactured by Idemitsu Petrochemical Co., Ltd.). In each case they were pulled up together with the bag and after* ***the drainage of excess oils*** *for 10 minutes, weight of the crumbs was measured to calculate how much oil was absorbed for the weight of the crumbs. Hereinafter, the calculated data was referred simply to as "oil absorption factor".*
>
> *"The rate of oil absorption of the crumbs was judged from the oil absorption factor for 3 minutes, while the amount of oil absorption of the crumbs was judged from the oil absorption factor for 30 minutes."* (***emphasis added***) (see column 8, lines 47 to 61 of Kusano et al.)

That is, (as already recognized by the Examiner,) in the method of Kusano et al., the time for immersion of the crumbs in the oil is long (3 minutes and 30 minutes), as compared to that (1 minute) in the present invention. Further, in Kusano et al., the method for removing excess oil is the simple "drainage of excess oils for 10 minutes", whereas, in the present invention, the crumbs after immersion of the oil are subjected to centrifugation under 1,000 G for 3 minutes. That is, it is quite apparent that the excess oil removal conditions used in the present invention (i.e., "centrifugation under 1,000 G for 3 minutes") are very stringent, as compared to the excess oil removal conditions used in Kusano et al. (i.e., "drainage of excess oils for 10 minutes").

In connection with the above, it should be noted that, if the oil-absorbing capability as defined in the present invention is measured with respect to the dried crumbs obtained in Kusano et al., the dried crumbs of Kusano et al. do not exhibit an oil-absorbing capability of 1.0 or more, as explained below.

In the present invention, as already mentioned above with reference to Table A above, the production conditions described in claim 2 of the present application are critical for obtaining the dried porous crumbs of the present invention, which has an excellent oil-absorbing capability. Attention is especially drawn to the fact that claim 2 of the present application requires that the dehydration be conducted by gravity, centrifugation or filtration (as stated in step (3) of the method of claim 2).

On the other hand, in Kusano et al., the production of the dried porous crumbs is conducted under conditions which do not satisfy the requirements of claim 2 of the present application. Specifically, it should be noted that Kusano et al. have the following description:

> *"... it is preferred to use, for example, a two stage process, wherein the obtained slurry is **dehydrated** by **mechanical squeezing** to produce wet crumbs"*
> (***emphasis added***) (*see* column 6, lines 56 to 59 of Kusano et al.)

Further, in all of the Examples of Kusano et al., the dehydration of the water-containing porous crumbs is conducted by mechanical compression (using twin rolls). This is apparent from the following descriptions of Examples 1 to 3 of Kusano et al.:

> *"The obtained slurry of crumbs was dehydrated to give wet crumbs of water content of 45 wt % by **twin rolls**."*
>
> (***emphasis added***) (*see* column 10, lines 11 to 12 of Kusano et al., i.e., a description of Example 1 of Kusano et al.);
>
> *"The obtained slurry was treated in the **same manner** as in Example 1..."*
>
> (***emphasis added***) (*see* column 11, lines 2 to 3 of Kusano et al., i.e., a description of Example 2 of Kusano et al.); and

> *"The obtained slurry was treated in the* ***same manner*** *as in Example 1..."* (***emphasis added***) (*see* column 12, lines 7 to 8 of Kusano et al., i.e., a description of Example 3 of Kusano et al.).

That is, the method employed in Kusano et al. for producing the dried porous crumbs is substantially the same as employed in Comparative Example 5 (using a twin roll type compression dehydrator) of the present application (see page 72, line 10 of the present English specification). Attention is drawn to the results of such Comparative Example 5 of the present application (see Table A above). In Comparative Example 5 of the present application, the obtained dried porous crumbs had an oil-absorbing capability as low as 0.7, and the shaped article produced from the dried porous crumbs had a very poor appearance. In view of the fact that the production method of Kusano et al. is substantially the same as employed in Comparative Example 5 of the present application, it is apparent:

that the dried porous crumbs of Kusano et al. do not exhibit an oil-absorbing capability as high as 1.0 or more (as measured by the method described in claim 1 of the present application), and

that, hence, a shaped article produced from the dried porous crumbs of Kusano et al. would have a very poor appearance.

From the above, it is apparent that Kusano et al. have no teaching or suggestion about the dried porous crumbs of the present invention, which have an excellent oil-absorbing capability and, hence, can be used for producing a shaped article having an excellent appearance, and it is also apparent that Kusano et al. have no teaching or suggestion about the production conditions described in claim 2 of the present application, which are critical for obtaining the excellent dried

porous crumbs of the present invention.

From the above, it is apparent that the dried porous crumbs of claim 1 of the present application are completely distinct from the microporous crumbs of Kusano et al. and that the method of claim 2 of the present application is completely distinct from the production method of Kusano et al. The present invention has both novelty and non-obviousness over Kusano et al.

Claims 3 to 7 are sub-claims depending directly or indirectly from claim 2. Therefore, it is believed that also the rejection of claims 3 to 7 has been removed.

Thus, it is firmly believed that a full patentability of all claims 1 to 7 of the present invention has been established.

It is believed that the present application is now in condition for allowance. As such, reconsideration and early favorable action are earnestly solicited.

CONCLUSION

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that each of pending claims 1-7 is allowed and patentable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

By_____
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